WHAT IS CLAIMED IS:

1	1. A flush-mount antenna system, to enable communication with a moving		
2	vehicle via a satellite, comprising:		
3	a cavity having a rectangular upper perimeter with four sides and having a		
4	depth normal to said perimeter;		
5	an array comprising a plurality of subarrays of rectangular form positioned		
6	in a rectangular arrangement having length and width edges, each such subarray including		
7	at least one waveguide having slot-type radiating elements;		
8	said array positioned within said cavity and arranged for rotation about an		
9	axis-of-rotation adjacent to an edge of the array and aligned with a side of the upper		
10	perimeter;		
11	an elevation scan actuator to mechanically tilt said array about said axis-		
12	of-rotation without removing the array from said cavity;		
13	a signal port; and		
14	a feed configuration to couple signals between the signal port and each		
15	subarray.		
1	2. A flush-mount antenna system as in claim 1, additionally comprising:		
2	an azimuth scan assembly to mechanically rotate said array to provide		
3	scanning in azimuth.		

1	3.	A flush-mount antenna system as in claim 2, wherein the azimuth scan
2	assembly is ar	ranged to mechanically rotate said cavity and the array positioned therein.
1	4.	A flush-mount antenna system as in claim 1, wherein the array comprises
2	square flat-pla	te type subarrays contiguously positioned in a rectangular array.
1	5.	A flush-mount antenna system as in claim 1, wherein each individual
2	subarray of sa	id plurality includes slotted waveguides in parallel side-by-side arrangement
3	and each wave	eguide includes at least one row of slot-type radiating elements.
1	6.	A flush-mount antenna system as in claim 1, wherein said slot-type
2	radiating elem	ents comprise crossed-slot radiating elements.
1	7.	A flush-mount antenna system as in claim 1, wherein a length edge of the
2	array is position	oned adjacent to said axis-of-rotation.
1	8.	An antenna system, to enable communication via satellite, comprising:
2		a cavity having an upper perimeter and a depth normal to said perimeter;
3		an array comprising a plurality of subarrays positioned in a two-
4	dimensional a	rrangement having an edge section and configured to provide a beam

pattern, each said subarray including at least one waveguide section having slot-type

5

6	radiating elements;		
7	s	aid array positioned within said cavity and arranged for rotation about an	
8	axis-of-rotation	adjacent to said edge section of the array to scan the beam pattern in	
9	elevation;		
10	а	n elevation scan actuator to mechanically tilt said array by rotation about	
11	said axis-of-rota	ation without removing the array from said cavity;	
12	a	signal port; and	
13	a	feed configuration to couple signals between the signal port and each	
14	subarray.		
)	
1	9. A	An antenna system as in claim 8, additionally comprising:	
2	a	n azimuth scan assembly to mechanically rotate said array to scan the	
3	beam pattern in	azimuth	
1	10. A	An antenna system as in claim 9, wherein the azimuth scan assembly is	
2	arranged to mec	chanically rotate said cavity and the array positioned therein.	
1	11. A	An antenna system as in claim 8, wherein the array comprises square flat-	
2	plate type subar	rays contiguously positioned in a rectangular array.	
1	12. A	An antenna system as in claim 8, wherein each individual subarray of said	

2	plurality includes slotted waveguides in parallel side-by-side arrangement and each		
3	waveguide includes at least one row of slot type radiating elements.		
1	13. An antenna system as in claim 8, wherein said slot-type radiating elements		
2	comprise crossed-slot radiating elements.		
1	14. An antenna system as in claim 8, wherein the upper perimeter includes a		
2	linear side portion and said axis-of-rotation is adjacent and parallel to said linear side		
3	portion and said array edge section.		
1	15. An antenna system, to enable communication via satellite, comprising:		
2	a cavity having an upper perimeter and a depth normal to said perimeter;		
3	an array comprising a plurality of subarrays positioned in a two-		
4	dimensional arrangement and configured to provide a beam pattern, each said subarray		
5	including at least one waveguide section having slot-type radiating elements;		
6	said array positioned within said cavity and arranged for rotation about an		
7	axis-of-rotation to scan the beam pattern in elevation;		
8	an elevation scan actuator to mechanically tilt said array by rotation about		
9	said axis-of-rotation without removing the array from said cavity;		
10	a signal port; and		
11	a feed configuration to couple signals between the signal port and each		

		92203/2043
12	subarray.	
1	16.	An antenna system as in claim 15, additionally comprising:
2		an azimuth scan assembly to mechanically rotate said array to scan the
3	beam pattern	in azimuth
1	17.	An antenna system as in claim 16, wherein the azimuth scan assembly is
2	arranged to m	nechanically rotate said cavity and the array positioned therein.
1	18.	An antenna system as in claim 15, wherein the array comprises square flat-
2	plate type sub	parrays contiguously positioned in a rectangular array.
1	19.	An antenna system as in claim 15, wherein each individual subarray of
2		includes slotted waveguides in parallel side-by-side arrangement and each
3	waveguide in	cludes at least one row of slot type radiating elements.
1	20.	An antenna system as in claim 15, wherein said slot-type radiating
2	elements com	aprise crossed-slot radiating elements.
1	21.	An antenna system as in claim 15, wherein the upper perimeter includes a

linear side portion, the array includes a linear edge section and said axis-of-rotation is

2

3 adjacent and parallel to said side portion and said edge section.